

# EUROPEAN PATENT OFFICE

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TITLE : FUEL CELL POWER GENERATING SYSTEM AND DETERIORATION DIAGNOSTIC  
METHOD OF ITS CELL STACK

ABSTRACT : PROBLEM TO BE SOLVED: To diagnose deterioration of a cell stack during power generation, and to determine the time of exchange of the cell stack to prevent sudden stop of a power generating system by comparing a cell stack current margin value found from the relation between cell stack current and cell stack voltage with a set value.

SOLUTION: The maximum cell stack current at the lower limit stack voltage previously determined is found from an approximate expression of the relation between cell stack current and cell stack voltage. A cell stack current margin value that is the difference between the maximum cell stack current and cell stack current in previously determined output is found. The cell stack current margin value is compared with a criterion previously determined to diagnose deterioration of the cell stack. The decreasing rate of the cell stack current margin value is found from the relation between the cell stack current margin value and the power generation time, the time required until the cell stack current margin reaches zero or a determined value is calculated, and the exchange time of the cell stack is determined.

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